

REMARKS

Claims 1-17 were pending in the present application. Claims 1, 8, and 9 have been amended, and new claims 18 and 19 have been added. Support for new claim 18 can be found in paragraph [0005] and support for new claim 19 can be found in paragraph [0009]. Support for "biological" in amended claim 1 can be found in paragraph [0010]. Claims 5, 13, 16, and 17 were provisionally withdrawn from consideration, pending the allowance of a generic claim. No new matter has been added. Therefore, claims 1-19 are now pending in the application.

35 U.S.C. § 112 Rejections

Claim 8 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 8 has been appropriately amended.

Prior Art Rejections

Claims 1, 2, and 9-11 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,255,783 to Goodman et al. (hereinafter "Goodman"). Applicant respectfully traverses this rejection for at least the following reasons.

Claim 1 recites a specimen holder configured for holding a water-containing biological specimen during high-pressure freezing of the specimen. According to paragraph [0007] of the present application, "The cooling rate for vitrification of biological specimens is approximate [sic] $10^5 - 10^6$ K/s at standard pressure, but at 2000 bar the cooling rate is only $10^3 - 10^4$ K/s; in other words, under high pressure biological specimens can still be vitrified at cooling rates that are about a hundred times lower." (Emphasis added.) Thus, while "high pressure" is not explicitly defined, the specification clearly differentiates between "standard pressure" (or about 1 bar, as well known by those skilled in the art) and "high pressure." Further, it is well known in the art of high-pressure freezing of biological materials that "high pressure" is typically greater than 100 atm. See, e.g., page 2, line 113 of GB 1,230,120 (Ref. A7) submitted with the December 20, 2001 IDS.

In sharp contrast, Goodman discloses an evacuated semiconductor wafer container. In col. 2, lines 41-62, Goodman discloses that the container 10 may be evacuated, or "a portion of the gas within the [container 10] may be removed and then subsequently replaced with an inert gas...". Goodman does not teach, suggest, or disclose that the container 10 is

configured for holding a water-containing specimen during high-pressure freezing of the specimen. Further, the container 10 is simply incapable of high-pressure freezing. The walls of the container 10 are formed of a moldable plastic. (Col. 2, lines 30-32.) In col. 3, lines 14-39, Goodman discloses that the cover 12 has a thin panel portion 27 such that its thinness "causes the panel to act like a flexible membrane so as to flex under conditions of vacuum pressure...". The walls of the cover 12 may have a thickness in the range of 0.050 to 0.075 [inches] and the panel portion 27 may have a thickness in the range of 0.010 to 0.040 [inches]. Clearly, at any pressure substantially greater than standard pressure, the container will either rupture at the panel portion 27 or blow open via joining edge portions 11.1, 12.1 (Figs. 1 and 6). In addition, Goodman does not relate to biological specimens. Thus, independent claim 1, and all claims dependent therefrom, are believed to be patentable over Goodman. Withdrawal of the rejections is respectfully requested.

Next, claims 1-4 and 7-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,938,058 to Kim (hereinafter "Kim") in view of Goodman. Applicant respectfully traverses this rejection for at least the following reasons.

Kim discloses a segmented multi-purpose portable container for storing small miscellaneous articles, such as toothbrushes, combs, and toothpaste. (Col. 3, lines 28-31.) Kim does not teach, suggest, or disclose a specimen holder configured for holding a water-containing biological specimen during high-pressure freezing of the specimen. Thus, Kim fails to cure the deficiencies of Goodman. Further, according to the Office Action, it would have been obvious to import the diamond coating of Goodman into the container of Kim "in order to form a hard, nearly perfect chemically resistant coating which has a low coefficient of friction to resist breakage, cracks and tearing, to resist chemical reaction and to assist in the low friction release of the specimen." Applicant respectfully disagrees. First, Kim and Goodman are from entirely different fields—i.e., no one skilled in the art of Kim (toothbrush containers) would look to the art of Goodman (evacuated semiconductor wafer containers), and vice versa. Second, Kim does not suggest that the container should be hard, chemically resistant, etc., and thus one of ordinary skill would have no motivation to import the diamond coating of Goodman. Third, one of the objects of Kim is to provide a container "that is relatively inexpensive to manufacture." (Col. 1, lines 28-30.) Thus, Kim teaches away from using expensive diamond materials. In addition, Kim does not relate to biological specimens. Therefore, independent claim 1, and all claims dependent therefrom, are

believed to be patentable over Kim and Goodman. Withdrawal of the rejections is respectfully requested.

Finally, claims 1-4, 6-12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,044,165 to Linner et al. (hereinafter "Linner") in view of Goodman. Applicant respectfully traverses this rejection for at least the following reasons.

Linner discloses an apparatus called a "cryo-slammer" in which a biological sample is slammed or plunged against a cryogenically cooled surface. (Abstract.) With reference to Fig. 14 and col. 16, lines 8-61, the shutter 65 is opened when the pressure inside vacuum chamber 21 reaches atmospheric pressure. Linner does not teach, suggest, or disclose high-pressure freezing. Further, if a high pressure were applied to the inside of vacuum chamber 21, it is clear that shutter 65 would blow off—i.e., the cryo-slammer of Linner is simply incapable of high-pressure freezing of a water-containing specimen. Goodman fails to cure the deficiencies of Linner. Thus, independent claim 1, and all claims dependent therefrom, are believed to be patentable over Linner and Goodman. Withdrawal of the rejections is respectfully requested.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. If claim 1 is allowed, Applicant respectfully requests consideration and allowance of the previously withdrawn claims.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

Date: 10/3/03

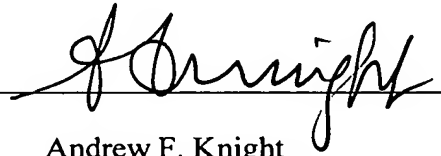
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